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NLTE SPECTRAL SYNTHESIS BASED ON 3D MHD CONVECTION SIMULATIONS - UNDERSTANDING THE ROLE OF THE MAGNETIC FIELD IN INTENSITY VARIATIONS

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While the magnetic field is considered to be the main driver for Solar Spectral Irradiance (SSI) variations, the detailed physical mechanisms that explain this relation are not yet fully understood. In this paper we analyze the effect of small scale magnetic field on the intensity in Ca II 393.4 nm and various continuum wavelengths calculated with the NLTE radiative transfer code SolMod3D. The code calculates NLTE level populations and line spectra based on 3D MHD simulations carried out with CO5BOLD. This enables us to study in great detail the effect of the varying small scale magnetic field on intensity variations. The results are important for a better understanding of the role of small-scale magnetic field in irradiance variations.